

**Amendments to the Claims:**

The listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1.-15. (Cancelled)

Claim 16. (Currently Amended) A periodic electromagnetic structure comprising an array of conducting LC elements in combination with a frequency-dependent dielectric, wherein ~~whose~~ permittivity and/or permeability of the dielectric varies according to the frequency of radiation incident thereon such that the resonant frequency of the LC elements follows the frequency of the incident radiation.

Claim 17. (Previously Presented) The structure of Claim 16, wherein the frequency-dependent dielectric has a response to incident radiation such that the product of the permittivity and permeability of the dielectric varies in proportion to the reciprocal of the square of the frequency of the incident radiation.

Claim 18. (Previously Presented) The structure of Claim 16, wherein the frequency-dependent dielectric has a response to incident radiation such that the permittivity of the dielectric generally varies in proportion to the reciprocal of the square of the frequency of the incident radiation and the permeability of the dielectric is substantially constant.

Claim 19. (Previously Presented) The structure of Claim 16, wherein the frequency-dependent dielectric has a response to incident radiation such that the permeability of the dielectric generally varies in proportion to the reciprocal of the square of the frequency of the incident radiation and the permittivity of the dielectric is substantially constant.

Claim 20. (Currently Amended) The structure of Claim 19, wherein the frequency-dependent dielectric is ferrite material type [[4E1.]] 4E1.

Claim 21. (Previously Presented) The structure of Claim 16, wherein the LC elements are protrusions from a flat conducting plate.

Claim 22. (Previously Presented) The structure of Claim 21, wherein the frequency-dependent dielectric abuts the conducting plate and the protrusions extend at least partially into the dielectric.

Claim 23. (Previously Presented) The structure of Claim 22, wherein the protrusions are generally thumb tack shaped.

Claim 24. (Previously Presented) The structure of Claim 19, wherein the structure forms an ultra compact photonic bandgap device.

Claim 25. (Previously Presented) The structure of Claim 19, wherein the structure forms a split ring resonator.

Claim 26. (Previously Presented) The structure of Claim 23, wherein the LC elements are disposed across the surface of the frequency-dependent dielectric.

Claim 27. (Previously Presented) The structure of Claim 19, wherein the structure comprises chiral conductors).

Claim 28. (Previously Presented) The structure of Claim 27, wherein the chiral conductors are helical.

Claim 29. (Previously Presented) The structure of Claim 27, wherein the chiral conductors are set within the frequency dependent dielectric.

Claim 30. (Previously Presented) The structure of Claim 16, wherein the structure forms a high-impedance surface.

Claim 31. (Previously Presented) The structure of Claim 30, wherein the surface impedance of the periodic electromagnetic structure is substantially  $377 \Omega$ .

Claim 32. (Previously Presented) An antenna comprising a periodic electromagnetic structure according to Claim 16.

Claim 33. (Previously Presented) A mobile phone handset comprising an antenna according to Claim 32.

Claim 34. (Previously Presented) A radar absorbent material comprising a periodic electromagnetic structure according to Claim 16, wherein the impedance of the structure is substantially  $377 \Omega$ , thereby to match the impedance of free space.